1035-57-1743 Alan Durfee* (adurfee@mtholyoke.edu), Department of Mathematics and Statistics, Mount Holyoke College, South Hadley, MA 01075. The self-linking of algebraic knots. Preliminary report. Many invariants of topological knots $\kappa : \mathbb{R}^1 \to \mathbb{R}^3$ are defined by projecting the knot to the plane and then showing that the invariant is preserved by Reidemeister moves. However a notion of self-linking cannot be defined this way since double points disappear under the first Reidemeister move.

Now let $\alpha : RP^1 \to RP^3$ be curve defined by rational functions, and suppose that over the complex numbers the curve is smooth and has no self-intersections. For these curves Viro introduces a notion of self-linking. The basic idea here is that a double point does not disappear under isotopy, but instead becomes an isolated real point where two complex conjugate branches of the curve intersect. Furthermore a sign can be attached to this point which is preserved under the first Reidemeister move.

We will discuss these ideas and some other results. For example the algebraic trefoil has self-linking +4. (Received September 20, 2007)